# UNITED STATES PATENT AND TRADEMARK OFFICE

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/005,778 | 11/08/2001 | Yunxin Li | CR1044AC | 1352 |

22917     7590     01/07/2005

MOTOROLA, INC.
1303 EAST ALGONQUIN ROAD
IL01/3RD
SCHAUMBURG, IL 60196

| EXAMINER |
|---|
| FILE, ERIN M |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2634 | |

DATE MAILED: 01/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

|  | Application No. | Applicant(s) |  |
|---|---|---|---|
| **Office Action Summary** | 10/005,778 | LI ET AL. | |
|  | Examiner | Art Unit | |
|  | Erin M. File | 2634 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *11/8/2001*.

2a)☐ This action is **FINAL**.    2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-19* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,7 and 11* is/are rejected.

7)☒ Claim(s) *2-6,8-10, 12-19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All    b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

## *Claim Rejections - 35 USC § 103*

1.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.      Claims 1, 7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Belveze in view of Napolitano.

**Claim 1**, Belveze discloses a filter bank (fig. 5, 71, col. 13, line 45) for processing a

baseband signal (20) of a received continuous phase modulated (CPM) signal with a

modulation index (col. 13, line 5). The filter bank outputs to a Soft Output Viterbi

Algorithm (SOVA, 86) delivering the estimations of the input bits, $D_m$, of the external

encoder (82), and the corresponding likelihoods $\lambda_m$ (col. 14, lines 54-57). The symbols

$D_m$ belong to a symbol sequence of a defined alphabet (col. 1 lines 10-14, col. 4, lines

21-22). The plurality of signals input to matched filters (71) are preconditioned by the

Channel Estimation and Synchronization Unit (69) that creates an impulse response

based on the complex valued input signal (col. 13, lines 35-39). Belveze fails to

disclose an integer modulation index, however Napolitano teaches a Continuous Phase

Modulation method that uses integer modulation index (abstract). Napolitano discloses

that the use of integer modulation index values for CPM signals allow for more general

representations of Pulse Amplitude Modulation (PAM) signals. Therefore it would be obvious to one skilled in the art at the time of invention to incorporate Napolitano's teachings into Belveze's apparatus.

**Claim 7**, inherits the limitations of Claim 1. Belveze further discloses that the filter bank is a matched filter bank (fig. 5, 71, col. 13, line 45).

**Claim 11**, Belveze discloses a receiver (fig 5, col. 13, line 17) and filter bank (fig. 5, 71, col. 13, line 45) for processing a baseband signal (20) of a received continuous phase modulated (CPM) signal with a modulation index (col. 13, line 5). The filter bank outputs to a Soft Output Viterbi Algorithm (SOVA, 86) delivering the estimations of the input bits, $D_m$, of the external encoder (82), and the corresponding likelihoods $\lambda_m$ (col. 14, lines 54-57). The symbols $D_m$ belong to a symbol sequence of a defined alphabet (col. 1 lines 10-14, col. 4, lines 21-22). The plurality of signals input to matched filters (71) are preconditioned by the Channel Estimation and Synchronization Unit (69) that creates an impulse response based on the complex valued input signal (col. 13, lines 35-39). Belveze fails to disclose an integer modulation index, however Napolitano teaches a Continuous Phase Modulation method that uses integer modulation index (abstract). Napolitano discloses that the use of integer modulation index values for CPM signals allow for more general representations of Pulse Amplitude Modulation (PAM) signals. Therefore it would be obvious to one skilled in the art at the time of invention to incorporate Napolitano's teachings into Belveze's apparatus.

*Claim Objections*

3.      Claims 2, 8-10, 17-19 are objected to because of the following informalities:  the

value of index value L is not defined.

Appropriate correction is required.

4.      Claims 3-6, 12-16 are objected to as dependent upon a rejected claim, but would

be allowable if rewritten in independent form.

5.      Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Erin M. File whose telephone number is (571)272-6040.

The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Stephen Chin can be reached on (571)272-3056.  The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system.  Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

STEPHEN CHIN
SUPERVISORY PATENT EXAMINEF
TECHNOLOGY CENTER 2600